REMARKS

Claims 1, 5-8, 11-13, 17-19, and 23-24, all the claims pending in the application, stand rejected on prior art grounds. Applicants respectfully traverse these rejections based on the following discussion. The following paragraphs have been numbered for ease of future reference.

I. The Prior Art Rejections

[0001] Claims 1, 5-8, 11-13, and 17-18 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Polak (U.S. Patent No. 6,226,627), in view of Li (U.S. Patent No. 6,625,500). Applicants respectfully traverse these rejections based on the following discussion.

[0002] Polak merely describes teaches a dependency action system uses redundant sets of dynamically reconfigurable functional components to achieve robustness and fault tolerance, and to achieve self-optimization by learning and planning techniques that use time-stamps and or computation stamps as a key indicator. The dependency action system is based on functional components, or actions, which act on data values that are stored in stamped storage locations. Data is read and written to these storage locations, updating the stamps as appropriate. The execution of an action is controlled by the stamps of its enabling and disabling storage locations. The dependency action system specifies an action as enabled if new data has arrived in the enabling storage locations. Updating the stamp of the disabling storage locations disables the action. If an alternative action succeeds and produces a value, the other alternative actions become disabled. If one action fails to produce a value to a storage location, other alternative actions may still be enabled and can be executed. Thus, the dependency action system supports automatic recovery from failure of an individual action. The dependency action system accumulates statistical information about the behavior of the actions, which includes the probability that a particular disabling storage location will be updated by an action and the average cost of an action. The dependency action system uses this information to plan a sequence of action executions that most likely leads to the cheapest solution of a given task.

[0003] Li describes a method for computer-generating interaction-specific knowledge base for rapidly improving or optimizing a performance of an object comprises performing,

according to computer-designed test matrices, at least several automatic experimental cycles on selected control variables. In at least one of the automatic experimental cycles after the first the computer plans a new test matrix designed to minimize or remove at least one expected two-variable interaction from a main effect of a designated control variable. A machine operating according to the method is also available.

[0004] The claimed invention, as provided in amended independent claims 1, 7, 13 and 19 contain features, which are patentably distinguishable from the prior art references of record. In particular, the Communication asserts that "[i]f multiple actions are enabled, the dependency action system uses a selection rule to determine which of the enabled actions is to be executed. It is possible to use a selection rule based on random choice. A policy can be pre-established that prescribes which action of a set of enabled actions is to be selected for execution" (Polak, co1.7 ll. 54-59); and "[t]he enabled action selection rule determines which of the enabled actions 620 and 622 is tried first. Similarly, if the action 620 does not update the storage location 632, but updates the storage location 630, the selection rule determines whether the action 640 or the action 622 is used for recovery. This behavior can be change by the designer of the dependency action system by adding additional dependencies" (Polak, col. 12, ll. 66 – col. 13, ll. 6). The Communication asserts these portions prove that Polak actually discloses "[a] method of instructing a computer program to self-optimize, said method comprising: inputting a selection command that selects one function from a list of pre-selected functions for input into said computer program at a point of choice determined by a programmer." (See for example, Communication, p. 12, ll. 2-12).

[0005] However, contrary to these assertions, it is apparent that Polak does not disclose how to come up with an optimized policy. Polak's statement that "this behavior can be change by the designer of the dependency action system by adding additional dependencies" fails to disclose how the designer uses, in advance, a method that enables the automatic choice of optimized policies when the software runs on its own. The claims of the Application recite a method for automatically developing optimized policies that choose actions based on current numerical or logical values of program variables. This is not disclosed by Polak, nor is it obvious from Polak in view of Li.

[0006] The Communication further asserts that "[t]he method and system of this invention are derived from biological systems and organisms that achieve resilience and adaptability through redundant functional components, planning the use of these components to achieve a given task, and learning appropriateness of components from experience" (Polak, col. 4 ll. 45-50); and "[a]n enabled action selection rule is used to select one of several enabled actions for execution. Different selection rules can be used, including a trivial selection rule that picks one of the enabled actions at random. This invention specifies an enabled action preference policy that is described below with respect to FIG. 13" (Polak, col. 8, ll. 49-57) and states that Polak discloses allowing a learning protocol comprised of learning instructions in to track and reward one function that is selected and to determine an approximate optimal policy of choice of operation based on said selection command.

[0007] However, it is apparent that Polak does not in fact disclose the recited features of the claims. Instead, Polak merely states that the method is derived from "biological systems and organisms" but fails to indicate how optimized selection rules are developed automatically.

[0008] The Communication concedes that Polak does not disclose the use of feedback points in the software. Applicant agrees. The Communication attempts to cure these admitted deficiencies by combining Polak with Li. Thus, the Communication cites Li, col. 16 ll. 5-9 "the computer can also provide multiple choices of simple reward-risk choices from the highly efficient experiments for the manager to select to decide, e.g., whether to continue the next self-optimizing cycle" and concludes that this would be enough for a person of ordinary skill in the art to modify Polak into Applicant's claimed invention.

[0009] However, neither Li nor Polak deal with an automatic method for developing an optimized policy based on rewards and indication (at the design phase) of relevant program variables. Thus, even assuming arguendo that Polak could be combined with Li, which Applicant submits cannot properly be done, the asserted combination fails to address these claimed features. Claims 1 and 13 therefore define patentable subject matter over the art of record. Claim 5-6 and 17-18 depend from claims 1 and 13 and therefore define patentable subject matter for at least the same reasons.

[0010] In regard to claim 7, the Communication asserts that "[t]his invention preferably

uses a specific type of selection rule, called a preference policy, that is based on a preference relation that specifies if one action is to be preferred over another action" (Polak, col.8 ll. 11-15) is the same as "specifying at least one point of choice, determined by a programmer, in said computer program."

[0011] Applicants respectfully submit that the indication of a choice together with a list of relevant program variables on the values of which the choice should depend is patentable distinct and different from defining "selection rules".

[0012] The Communication further asserts that "[i]f multiple actions are enabled, the dependency action system uses a selection rule to determine which of the enabled actions is to be executed. It is possible to use a selection rule based on random choice." (Polak, col.7 ll. 54-57). However, this fails to remedy any of the deficiencies note above. Li also fails to remedy any of the above-identified deficiencies. Thus, claim 7 defines patentable subject matter over the art of record. Claims 8 and 11-12 depend from claim 7 and therefore define patentable subject matter for at least the same reasons.

[0013] Claims 19 and 23-24 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Polak, in view of Li, and in further view of Christensen, et al. (U.S. Patent No. 5,333,304), hereinafter referred to as Christensen. These rejections are traversed.

[0014] Christensen describes a method and apparatus for evaluating software application performance utilizing a compiler application. An evaluation function is created which may be utilized to track and store software application execution information at each invocation thereof. A software application to be evaluated is compiled utilizing a compiler application which inserts at least one prelude routine command during compiling which is utilized to invoke the prelude routine upon each entry to a procedure within the software application. A command invoking the evaluation function is inserted into the prelude routine such that each entry to a procedure within the, software application under evaluation will result in the storage of execution information at that point. In the depicted embodiment of the present invention execution information at each exit from a procedure within the software application is also tracked and stored by invoking the evaluation function automatically prior to returning from a current procedure.

[0015] The Communication does not assert that the Christensen reference remedies any of the above-identified deficiencies of the asserted Polak-Li combination, nor does it. Thus, independent claim 19 defines patentable subject over Polak-Li and/or Christensen for at least the same reasons as discussed above with respect to claims 1 and 13. Claims 23-24 depend from claim 19 and therefore also define patentable subject matter for at least the same reasons.

[0016] Applicants note that all claims are properly supported in the specification and accompanying drawings, and no new matter is being added. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the rejections.

II. Formal Matters and Conclusion

[0017] With respect to the rejections to the claims, the claims have been amended, above, to overcome these rejections. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the rejections to the claims.

[0018] In view of the foregoing, Applicants submit that claims 1, 5-8, 11-13, 17-19, and 23-24, all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

[0019] Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary. Please charge any deficiencies and credit any overpayments to Attorney's Deposit Account Number 09-0441.

Respectfully submitted,

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